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CLAIMS

- 1. Polymorphic Form C of base ondansetron, 5 characterised in that its powder X-ray diffraction pattern presents characteristic peaks at 14.97 and 20.86° 2θ and presents no peaks beneath 6.5° 2θ .
- 2. Polymorphic Form D of base ondansetron, 10 characterised in that its powder X-ray diffraction pattern presents characteristic peaks at 11.29°; 14.58°; 17.16°; 18.89°; 20.28°; 21.22°; 25.06° and 27.49° 20.
- Polymorphic Form E of base ondansetron,
 characterised in that its powder X-ray diffraction pattern presents characteristic peaks at 6.29°; 11.09°; 11.88°; 12.69°; 14.97° and a doublet at (24.96°; 25.17°) 2θ.
- 4. Polymorphic form according to Claim 1, 20 characterised in that its powder X-ray diffraction pattern also presents a peak at 25.50° 2θ .
- 5. Polymorphic form according to Claim 4, characterised in that its powder X-ray diffraction pattern 25 presents the following peaks:

2θ	(°)
	7.18
	10.96
•	13.13
	14.97
	16.08
	16.42
	19.73
	20.86

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21.	82
24.	08
24.	70
25.	50
26.	73
27.	59
28.	97

6. Polymorphic form according to Claim 5, characterised in that it presents a powder X-ray diffraction pattern in accordance with Figure 1.

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7. Polymorphic form according to Claim 2, characterised in that its powder X-ray diffraction pattern presents the following peaks:

5.58 7.10 7.26 10.77 10.92 11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	2θ(°)		
7.10 7.26 10.77 10.92 11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	5.	5	8
7.26 10.77 10.92 11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98	7.	1	0
10.77 10.92 11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	7.	2	6
10.92 11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	10.	7	7
11.29 13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	10.	9	2
13.23 13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	11.	2	9
13.65 14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	13.	2	3
14.58 14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	13.	6	5
14.74 15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	14.	5	8
15.23 15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	14.	7	4
15.38 15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	15.	2	3
15.92 16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	15.	3	8
16.22 16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	15.	9	2
16.48 17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	16.	2	2
17.16 17.86 18.89 20.28 20.71 21.22 21.98 22.84	16.	4	8
17.86 18.89 20.28 20.71 21.22 21.98 22.84	17.	1	6
18.89 20.28 20.71 21.22 21.98 22.84	17.	8	6
20.28 20.71 21.22 21.98 22.84	18.	8	9
20.71 21.22 21.98 22.84	20.	2	8
21.22 21.98 22.84	20.	7	1
21.98 22.84	21.	2	2
22.84	21.	9	8
	22.	8	4

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23.53 24.12 24.75 25.06 26.03 26.17 26.56 26.79 27.49 27.91 28.75 29.41					
24.75 25.06 26.03 26.17 26.56 26.79 27.49 27.91 28.75	2	3	•	5	3
25.06 26.03 26.17 26.56 26.79 27.49 27.91 28.75	2	4	-	ĺ	2
26.03 26.17 26.56 26.79 27.49 27.91 28.75	2	4	-	7	5
26.17 26.56 26.79 27.49 27.91 28.75	2	5		0	6
26.56 26.79 27.49 27.91 28.75	2	6	•	0	3
26.79 27.49 27.91 28.75	2	6		1	7
27.49 27.91 28.75	2	6		5	6
27.91 28.75	2	6		7	9
28.75	2	7		4	9
	2	7	•	9	1
29.41	2	8		7	5
	2	9	•	4	1

Polymorphic form according to Claim 7, 8. characterised in that presents a powder X-ray diffraction pattern in accordance with Figure 2.

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5 Claim form according to 9. Polymorphic characterised in that its powder X-ray diffraction pattern

presents the following peaks:

2θ (°)	
6. 7.	29 06 50
7.	06
10.	50
11.	09
11.	88
12.	69
13.	10
13.	57
14.	97
16.	33
16.	93
17.	40
18.	58
19.	28
20.	71
21.	08
21.	28
22.	10
24.	12
10. 11. 11. 12. 13. 13. 14. 16. 17. 18. 19. 20. 21. 21. 22. 24.	71

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24.	96
25.	17
25.	73
26.	65
26.	93
28.	. 18
28.	. 53
29.	. 34
29.	.76

10. Polymorphic form according to Claim 9, characterised in that it presents a powder X-ray diffraction pattern in accordance with Figure 3.

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- 11. Process for preparing the polymorphic form according to Claim 1, characterised in that it comprises:
 - a) preparation of a saturated solution of base ondansetron at room temperature in dichloromethane;
- 10 b) precipitation of the crystalline form by addition of a C_5-C_7 alkane; and
 - c) recovery of the crystalline form.
- 12. Process according to Claim 11, characterised 15 in that said C_5-C_7 alkane is n-hexane or n-pentane.
 - 13. Process for preparing the polymorphic form according to Claim 2, characterised in that comprises:
- a) dissolution of base ondansetron in a C_1 - C_4 alcohol 20 at reflux;
 - b) addition of t-butyl-methyl-ether followed by cooling; and
 - c) recovery of the crystalline form.
- 25 14. Process for preparing the polymorphic form according to Claim 3, characterised in that it comprises:
 - a) dissolution of the ondansetron hydrochloride in a mixture of a $C_1\mbox{-}C_3$ alcohol and water;

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- b) precipitation of the base ondansetron by basification of the solution;
- c) filtering the solid and washing with water;
- d) suspension of the water-moistened solid obtained in stage c) with methanol at reflux with stirring; and
 - e) recovery of the crystalline form.
- . 15. Process according to any of claims 13 or 14, characterised in that said alcohol is methanol.

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- 16. Process according to Claim 14, characterised in that the basification of stage b) is carried out by addition of an aqueous ammonia solution.
- 17. Pharmaceutical composition that includes a polymorphic form according to any of claims 1 to 10, in a therapeutically active amount and with a suitable amount of at least one excipient.
- 18. Polymorphic form according to any of claims 1 to 10 for use for manufacturing a drug for the treatment and prophylaxis of post-operative nausea and vomiting and for the control of nausea and vomiting induced by radiotherapy and cytotoxic chemotherapy.

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